Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of Part 15 and other	)	ET Docket No. 01-278
Parts Of the Commission's Rules	)	RM-9375
	)	RM-10051

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To: The Commission

COMMENTS OF ROBERT S. BENNETT IN RESPONSE TO NOTICE OF PROPOSED RULE MAKING

1. INTRODUCTION

On November 22, 2000, SAVI Technology, Inc. made a request to the Commission that changes be made in Part 15 rules to permit increased duty cycles and allowable field strengths for radio frequency identification (RFID) systems. SAVI has asked that the Part 15 changes specifically include the 420-450 MHz band, which is currently available to and used by the Amateur Radio Service in most parts of the United States. A specific center frequency for RFID systems of 433.9 MHz was suggested. It is believed that this choice of frequency was based on two factors. First, there is an existing use of 433.9 MHz for ISM devices in other parts of the world, thus giving SAVI the potential for international sales without equipment modification. Second, there would be cost savings in manufacture if existing ISM designs could be incorporated into the SAVI RFID equipment. Outside of these economic factors, the undersigned sees no benefit to SAVI or the public in this choice of frequency. Before a change is made to Part 15, consideration should be given to the cost in detriment to the Amateur Service vs. the benefits to SAVI and others who would surely follow suit if SAVI's petition were granted. SAVI did not provide any indication that it had analyzed the extent of this detriment, or that it was aware that such a potential even existed. More recently, SAVI did conduct interference tests with its proposed equipment, but it limited the Amateur Service equipment to a fairly robust FM repeater system, ignoring the wide variety of other modes which are far more susceptible to interference. SAVI's petition was given file number RM-10051 in early 2001, and is now the subject of ET Docket No. 01-278, to which these comments are addressed. Objections are based on the undersigned's belief that the

choice of frequency is inappropriate and detrimental to the Amateur Service. Furthermore, changes to Part 15 by the Commission at this time may give an impression of consent to the already widespread sales and use of overpowered 'Part 15' devices which are a continuing source of interference to licensed Amateur Radio Service operations on the 420-450 MHz band. The Public Interest would not be served by such a change.

2. QUALIFICATIONS OF THE UNDERSIGNED

The undersigned is well qualified to comment in this matter. He has been a licensed Amateur Radio Operator since June of 1953, and currently holds an Amateur Extra Class License. He was awarded a Ph.D. Degree in Electrical Engineering by the Johns Hopkins University, and was Manager of Simulation and Analysis for the Ketron Division of the Bionetics Corporation for 20 years. He is President of the Baltimore Radio Amateur Television Society, and for 25 years has maintained an Amateur Television (ATV) repeater on the 420-450 MHz band for that organization. He is currently an Assistant Director of the American Radio Relay League, Inc. (ARRL), and has served the ARRL as Chairman of the VHF/UHF Advisory Committee and Chairman of the Spectrum Management Committee. He derives none of his income directly from use of the frequencies in question.

3. SPECIFIC REASONS FOR OPPOSITION

A. The frequencies suggested by SAVI, and power levels and duty cycles proposed by the Commission would seriously impact Amateur Service operation in the 420-450 MHz band.

If the United States were to follow the pattern of the European ISM allocations for relaxation of Part 15 requirements, this would mean allowing RFID type transmissions (meaning on/off duty cycles approaching continuous operation) for frequencies ranging from 433.03 to 434.77 MHz. Contrary to the assumption made by SAVI in its 'demonstration' to the ARRL, the predominant use of these frequencies in the Amateur Radio Service is not the high powered FM repeaters found between 442 and 450 MHz, but rather auxiliary and link systems, intentionally running low power both to avoid mutual interference and to avoid raising the 'noise floor' in the adjacent parts of the spectrum. While a SAVI system producing a 3 meter field strength of 200 microvolts per meter may not always impact these links and auxiliary channels, the random location of SAVI equipment raises the distinct possibility that they may. Where this occurs, the Amateur Radio operators would have to increase power, resulting in raising of the adjacent noise

floor as well as potentially interfering with the SAVI equipment. If, as is proposed in the NPRM, the allowable field strength were to be increased to 11 MILLIvolts per meter at the same distance, of course the probability of interference to the Amateur operation, the RFID devices, and adjacent spectrum operation would greatly increase. As to this adjacent spectrum operation, the frequencies from 432.00 to 433.00 MHz are being used by the Amateur Radio Service for weak signal modes, which are the modes most susceptible to degradation by an increased noise floor. The frequencies from 432.00 to 432.07 MHz have been the location of most earth-moon-earth (EME) work which requires as quiet a background as possible. This was recognized by the Commission when it prohibited repeater operation between 431.00 and 433.00 MHz. The frequencies from 432.07 to 432.10 MHz are used for other weak signal reception, with a calling frequency at 432.10. The most susceptible weak signal work is conducted between 432.3 and 433.00 MHz, which is almost in direct 'contact' with the SAVI proposed channel. Immediately above the SAVI channel, from 435.00 to 438.00 MHz, is an international set-aside for space and satellite operation, again a type of operation which requires a low background noise. The net result of randomly located, 11 millivolt per meter, continuous operation Part 15 devices around 433.9 MHz would ultimately lead to an increase power usage by the Amateur Service operation in this spectrum, resulting in turn in decreased usefulness of the weak signal spectrum and degradation of the very systems SAVI is planning to market. This increased power would, of course, be entirely consistent with Part 97 rules for the Amateur Service. While SAVI and other manufacturers may find a manufacturing cost advantage to using the cheaper RF devices available for this frequency choice, overall this could prove a very poor economic move.

B. A modification of Part 15 will lead to such use of the 420-450 MHZ band far beyond RFID systems.

It is well known that the growth of 'Part 15' devices on 902-928 MHz and the frequencies around 2.3 GHz has been explosive. The protection offered to the 420-450 MHz band by the current Part 15 limitations has so far prevented such explosive growth on this band, although the number and type of Part 15 devices at 70 cm is sharply increasing. The undersigned has operated an Amateur Television repeater with input carrier frequency of 426.25 MHz for over 25 years. In recent years, with the proliferation of computer equipment and other RF operated devices, the interference to input pictures at times makes the system unusable. Direction-finding attempts at locating the source show that it comes from all directions, and is non-existent after about 11pm.

While it is true that the Amateur Service must not be interfered with by such devices, and the owners must cease using them in cases of Amateur interference, locating dozens or hundreds of such devices is simply not possible. If the Part 15 rules were to be relaxed across the 70 cm band, of even the center half, such interfering equipment would surely become the major source of interference to this mode, which is now finding its way into Amateur public service activities. Unlike the SAVI situation, increasing power is not an option here for the Amateur Television Operators, many of whom are already using the maximum power that they, as Amateurs, can afford.

C. A modification of Part 15 could be interpreted as a giving legitimacy to existing overpowered 'Part 15' devices which are already in wide use in the spectrum used by the Amateur Radio Service.

It is possible to purchase, through numerous catalogues, radio and television transmitting equipment which produces field strengths far in excess of that allowed by the current Part 15 rules. Some of this equipment operates in the Amateur Service allocations, and the more reputable manufacturers do include the statement that " An Amateur Radio License is required for the operation of this equipment. Unfortunately, much of the advertising does not include this statement, and frequencies outside the Amateur bands are sometimes used. The undersigned recently purchased a television transmitter by mail order which produced a very good picture at a range of more than a mile, operating just BELOW 1200 MHz! Let me hasten to add that the equipment was modified to put its channel entirely within the Amateur band before operation! It is not likely that the manufacturer truly believed that this was Part 15 operation. If the Commission were to suddenly allow continuous operation of Part 15 devices with a field strength of 11,000 microvolts per meter instead of limiting the duty cycle or field strength to current limits, will this not be interpreted by manufacturers that 'the Commission really doesn't care what we do?'

4. SUMMARY

No fault is found with the SAVI proposal to provide RFID systems. The issue is with the choice of the Amateur Service 70 cm band for this equipment, and some precedents which would be set for future encroachment on Amateur operation if the NPRM were to be adopted. SAVI is not an Amateur-oriented firm, and can be excused for making a poor choice of frequencies based on an apparent saving in manufacturing cost, without full consideration of the very real cost to the Amateur Service. The Commission, having

the expertise to evaluate the situation, should assist SAVI and other manufacturers in finding alternative spectrum for their very worthwhile products.

Respectfully submitted,

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